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Review on strain sensors for detection of human facial expressions recognition systems (Review)

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Abstract

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Facial expression plays an important factor in human communication which helps us to understand the intentions and emotions of others. Generally, people infer the emotional states of other people such as fear, sadness, joy and anger just by looking at the facial expression and vocal tone. Moreover, facial expression can also be used to deliver messages especially for those who are paralyzed which their only means of communication is through facial expression. Therefore, by exploiting the facial expression of a paralyzed patient, a sensory system could be developed which would allow the patient to communicate with others and to assist them to actuate robotic limbs in order to improve their mobility. Conventional methods such as vision sensors that use cameras to detect facial expression have suffered from low mobility, high complexity, high cost and difficulty to adapt as wearable. Stretchable electronic devices have been developed for various applications including heaters, energy converters, transistors and sensors. Wearability, conformability to the skin, less complicated design and low cost promotes the use of strain sensor as part of a system for facial expression detection. This review paper presents the development of stretchable strain sensors for human facial expression detection focusing mainly on the materials and fabrication strategies. In addition, this paper also provides fundamental structural design as well as challenges and opportunities in realizing stretchable strain sensor and their various potential applications.

SciVal Topic Prominence

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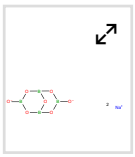
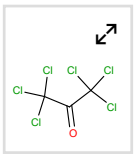

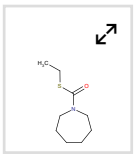
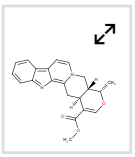

Author keywords

Facial Expression Recognition | Stretchable Strain Sensor | Wearables

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